Course Code: 23BS2T01

BONAM VENKATA CHALAMAYYA ENGINEERING COLLEGE: ODALAREVU
(AUTONOMOUS)
I B. Tech II-Semester Regular/Supplementary Examinations (BR23), June-2026
DIFFERENTIAL EQUATIONS AND VECTOR CALCULUS
(COMMON TO ALL BRANCHES)

Time: 3 hours **Max. Marks: 70**

Question Paper consists of Part-A and Part-B
Answer ALL the questions of Part-A
Part-B consists of 5 questions with either/or choice, answer any one from either/or choice

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PART–A (10X2 = 20M)

		BTL	CO	Marks
1.a)	The Integrating factor of $\frac{dy}{dx}+\frac{1}{x}y=\frac{logx}{x}$ is	BL1	1	(2M)
b)	Find the orthogonal trajectories of family of circles $x^2+y^2=a^2$(ais parameter)	BL3	1	(2M)
c)	Solve px+qy=z.	BL3	2	(2M)
d)	Write the differential equation for finding the current in an L-C-R electric circuit supplied with an emf $f(t)$	BL1	2	(2M)
e)	Form the differential equation by eliminating the arbitrary functions from $U=f(x+ct)+g(x-ct)$.	BL1	3	(2M)
f)	Form the partial differential equation by eliminating the arbitrary constants a and b from $z=ax+by$.	BL1	3	(2M)
g)	Find $Curl\ grad\ \phi$ where $\phi=x^2yz^3$.	BL1	4	(2M)
h)	Find grad f where $f=x^3+y^3+3xyz$ at (1,1,-2)	BL1	4	(2M)
i)	State Stoke's theorem.	BL1	5	(2M)
j)	If A is the area of the region bounded by C:$x^2+y^2=4$,then find the value of $\iint_C ydx-xdy$	BL1	5	(2M)

PART–B (5X10 = 50M)

		BTL	CO	Marks
	UNIT-I			
2.(a)	Solve the following differential equation by reducing to a linear differential equation$\frac{dy}{dx}=\frac{y}{x+\sqrt{xy}}$	BL3	1	(5M)

2.(b)	If the temperature of a body is changing from 100^0C to 70^0C in 15 minutes, find when the temperature will be 40^0C, if the temperature of the air is 30^0C	B L3	1	(5M)
	(OR)			
3.(a)	Bacteria in a culture grow exponentially so that the initial number has doubled in 3 hours. How many times the initial number will be present after 9 hours.	B L3	1	(5M)
3.(b)	Solve $(3xy - 2ay^2)dx + (x^2 - 2axy)dy = 0$	B L3	1	(5M)
	UNIT-II			
4.(a)	For an L-R-C circuit, the charge q on aplate of the condenser is given by $L\frac{d^2q}{dt^2} + R\frac{dq}{dt} + \frac{q}{C} = ESin\omega t$, where $i = \frac{dq}{dt}$. The circuit is tuned to resonance so that $\omega^2 = \frac{1}{LC}$. If $CR^2 < 4L$ and initially $q = 0, i = 0$. Show that $q = \frac{E}{R\omega}\left[e^{-\frac{Rt}{2L}}\left(\cos p\,t + \frac{R}{2Lp}\sin pt\right) - \cos w\,t\right]$ where $p^2 = \frac{1}{LC} - \frac{R^2}{4L^2}$	B L3	2	(5M)
4 (b)	Solve $\frac{d^2y}{dx^2} - 6\frac{dy}{dx} + 13y = 8e^{3x}\sin 2x$	BL3	2	(5M)
	(OR)			
5.(a)	Apply the method of variation of parameters to solve $\frac{d^2y}{dx^2} + a^2\,y = Sec\,ax.$	B L3	2	(10M)
	UNIT-III			
6.(a)	Solve $x^2(y - z)p + y^2\,(z - x)q = z^2(x - y)$.	B L3	3	(5M)
6.(b)	The complete solution of $4D^2 - 12DD^{\backslash} + 5D^{1^2} = e^{3x+4y}$	BL3	3	(5M)
	(OR)			
7.(a)	Solve $\frac{\partial^2 z}{\partial x^2} - 2\frac{\partial^2 z}{\partial x \partial y} + \frac{\partial^2 z}{\partial y^2} = sin(2x + 2y)$	B L3	3	(5M)
7.(b)	Form the Partial differential equation from $f(x + y + z, x^2 + y^2 + z^2) = 0.$	B L3	3	(5M)
	UNIT-IV			
8.(a)	Find the unit normal vector to the surface $x^2y + 2xz = 4$ at the point $(2, -2,3)$. Also find the directional derivative of the surface in the direction normal to the surface $x\,log\,z - y^2 = 1$ at $(-1,2,1)$	BL3	4	(5M)
8.(b)	Given $\bar{F} = (x^2 - yz)\bar{\imath} + (y^2 - xz)\bar{\jmath} + (z^2 - yx)\bar{k}$. Calculate Curl $\bar{F}$. Also Find a scalar function $\phi(x, y, z)$, such that Grad$\phi(x, y, z) = \bar{F}$.	B L3	4	(5M)
	(OR)			
9.(a)	Evaluate the angle between the normals to the surface $xy = z^2$ at the points $(4,1,2)$ & $(3,3,-3)$.	B L3	4	(5M)
9.(b)	Show that the vector $\bar{A} = (x^2 - yz)\bar{\imath} + (y^2 - zx)\bar{\jmath} + (z^2 - xy)\bar{k}$ is irrotational. Also find ϕ Such that $\bar{A} = \nabla\phi$.	B L3	4	(5M)

	UNIT-V			
10.(a)	Find the work done by $\bar{F} = (2x - y - z)\bar{\imath} + (x + y - z)\bar{\jmath} + (3x - 5z - 2y)\bar{k}$ along the curve in the xy-plane given by $x^2 + y^2 = 9, z = 0$	B L3	5	(5M)
10.(b)	Verify Stoke's Theorem for $\bar{A} = (2x - y)\bar{\imath} - yz^2\bar{\jmath} - y^2z\bar{k}$ over upper half of the surface of the sphere of unit radius.	B L3	5	(5M)
	(OR)			
11.(a)	Verify Green's theorem to evaluate $\int_c[(xy + y^2)dx + (x^2)dy]$, where c is the closed curve of the region bounded by the y=x and $y=x^2$.	B L3	5	(6M)
11.(b)	Use divergence theorem to evaluate $\iint_s \overline{F}.d\overline{S}$ where $\overline{F} = x^3i + y^3j + z^3k$ and S is the surface of the sphere$x^2 + y^2 + z^2 = r^2$.	B L3	5	(4M)

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Course Code: 23BS2T04

BONAM VENKATA CHALAMAYYA ENGINEERING COLLEGE ODALAREVU
(AUTONOMOUS)
I B.Tech II Semester Regular/Supplementary Examinations (BR23), June-2026
ENGINEERING CHEMISTRY(CE,ME)

Time: 3 hours **Max. Marks: 70**

Question Paper consists of Part-A and Part-B
Answer ALL the questions of Part-A
Part-B consists of 5 questions with either/or choice, answer any one from either/or choice

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PART–A (10X2 = 20M)

		Marks	CO	BTL
1.a)	Give the two examples that cause temporary hardness to the water and how can it be removed?	2M	CO1	BL1
b)	Define hardness of water.	2M	CO1	BL1
c)	What is emf (electromotive force)?	2M	CO2	BL1
d)	What is corrosion? Give one example for corrosion.	2M	CO2	BL1
e)	Explain the applications of Thiokol rubber.	2M	CO3	BL2
f)	Explain Octane number.	2M	CO3	BL2
g)	Define port land cement.	2M	CO4	BL1
h)	What is Cloud point & Pour point?	2M	CO4	BL1
i)	What is micelle formation?	2M	CO5	BL1
j)	Write few catalytic and medicinal applications of colloids and nano materials.	2M	CO5	BL1

PART–B (5X10 = 50M)

		Marks	CO	BTL
	UNIT-I			
2.(a)	Explain briefly short note on Scale.	5M	CO1	B L2
2.(b)	Define Sludges. Explain the removal of Sludges.	5M	CO1	B L2
	(OR)			
3.(a)	What is Reverse osmosis? Explain the Electro dialysis method.	5M	CO1	B L2
3.(b)	Explain the removal of hardness of water by ion exchange method.	5M	CO1	B L2
	UNIT-II			
4.(a)	Explain the factors effecting rate of corrosion.	5M	CO2	B L2
4.(b)	Derive Nernst equation for single electrode potential.	5M	CO2	B L3
	(OR)			
5.(a)	Discuss the Electroplating and Electro less plating.	5M	CO2	B L2
5.(b)	Explain the construction, working and applications of Ni-Cd battery.	5M	CO2	B L2
	UNIT-III			
6.(a)	Describe the synthesis of Bakelite from phenol and formaldehyde and discuss its industrial applications.	5M	CO3	B L3
6.(b)	Differences between the Thermoplastics and Thermosetting plastics.	5M	CO2	B L2
	(OR)			
7.(a)	Write a note on Ultimate analysis of coal and its significance.	3M	CO3	B L2
7.(b)	Explain the Refining of petroleum with a neat diagram.	7M	CO3	B L2
	UNIT-IV			
8.(a)	Write a short note on setting and hardening of cement.	5M	CO4	B L2
8.(b)	Define refractories. Classify the types of refractories.	5M	CO4	B L2
	(OR)			

9.(a)	Write about Thick-film and Thin-film mechanisms.	5M	CO4	B L2
9.(b)	Classify composite materials and explain the role of fiber reinforcement and structural reinforcement in improving material performance.	5M	CO4	B L3

UNIT-V

10.(a)	Write about the synthesis of colloids by any one method.	4M	CO5	B L2
10.(b)	Explain the preparation of nano materials by the sol-gel method with a neat diagram and discuss its advantages.	6M	CO5	B L3

(OR)

11.(a)	Explain the stabilization process of colloids.	4M	CO5	B L2
11.(b)	Explain briefly Langmuir absorption isotherm.	6M	CO5	B L2

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Course Code: 23BS2T03

BONAM VENKATA CHALAMAYYA ENGINEERING COLLEGE :: ODALAREVU
(AUTONOMOUS)

I B.Tech II Semester Regular / Supplementary Examinations (BR23), June-2026

CHEMISTRY (EEE & ECE)

Time: 3 hours **Max. Marks: 70**

Question Paper consists of Part-A and Part-B
Answer ALL the questions of Part-A
Part-B consists of 5 questions with either/or choice, answer any one from either/or choice

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PART–A (10X2 = 20M)

		Marks	CO	BTL
1.a)	State the Pauli Exclusion Principle.	(2M)	CO 1	BTL1
b)	Define bond order. How is it calculated for O_2 molecule.	(2M)	CO 1	BTL 1
c)	What is a p-n junction diode? Mention one of its applications.	(2M)	CO 2	BTL 2
d)	What is a super capacitor? Mention one application.	(2M)	CO 2	BTL 1
e)	What is the difference between a primary cell and a secondary cell?	(2M)	CO 3	BTL 1
f)	What is the role of the salt bridge in an electrochemical cell?	(2M)	CO 3	BTL 2
g)	What are elastomers? Name two types.	(2M)	CO 4	BTL 1
h)	Write any two applications of Nylon-6, 6.	(2M)	CO 4	BTL 1
i)	State Beer-Lambert's law.	(2M)	CO 5	BTL 1
j)	What are fundamental modes of vibration in IR spectroscopy?	(2M)	CO 5	BTL 2

PART–B (5X10 = 50M)

		Marks	CO	BTL
	UNIT-I			
2.(a)	Explain Molecular Orbital Theory with reference to the formation of CO molecule.	(5M)	CO 1	BTL 2
2.(b)	Draw the molecular orbital diagram and calculate its bond order. Discuss the magnetic nature of CO.	(5M)	CO 1	BTL 3
	(OR)			
3.(a)	Derive the Schrödinger wave equation for a particle in a one-dimensional box.	(6M)	CO 1	BTL 3
3(b)	Explain the quantization of energy and draw the energy level diagram.	(4M)	CO 1	BTL 2
	UNIT-II			
4.(a)	Explain the working of a p-n junction diode with a neat diagram.	(6M)	CO 2	BTL 3
4.(b)	Write short notes on Graphene nano particles: Properties and applications.	(4M)	CO 2	BTL 2
	(OR)			
5.	Discuss any three properties and applications for the following nano materials a) Fullerenes b) carbon nano tubes c) Graphene.	(10M)	CO 2	BTL 2
	UNIT-III			
6.	Describe the construction, working, and cell reactions of: a) Zinc-air battery b) Lithium-ion battery	(10M)	CO 3	BTL 2

(OR)

7.(a)	Discuss the types of electrochemical titrations.	(4M)	CO 3	BTL 2
7.(b)	Compare potentiometric and conductometric titrations.	(6M)	CO 3	BTL 3

UNIT-IV

8.(a)	Distinguish between chain growth and step growth polymerization with examples	(5M)	CO 4	BTL 3
8.(b)	Discuss the preparation and properties of Buna-S and Buna-N elastomers	(5M)	CO 4	BTL 2

(OR)

9.	Compare and contrast the properties and applications of PVC, Teflon, and Bakelite.	(10M)	CO 4	BTL 3

UNIT-V

10(a)	Discuss the electromagnetic spectrum.	(5M)	CO 5	BTL 2
10(b)	Explain the types of electronic transitions observed in UV-visible spectroscopy	(5M)	CO 5	BTL 3

(OR)

11(a)	Sketch and write a short note on HPLC along with the classification.	(5M)	CO 5	BTL 3
11(b)	State and explain Beer-Lambert's law with mathematical expression.	(5M)	CO 5	BTL 2

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Course Code: 23BS2T02

BONAM VENKATA CHALAMAYYA ENGINEERING COLLEGE :: ODALAREVU
(AUTONOMOUS)

I B.Tech II Semester Regular / Supplementary Examinations (BR23), June-2026

ENGINEERING PHYSICS

(CSE,IT,CSE (AI&DS,AI&ML & CSE(AI&ML))

Time: 3 hours **Max. Marks: 70**

Question Paper consists of Part-A and Part-B
Answer ALL the questions of Part-A
Part-B consists of 5 questions with either/or choice, answer any one from either/or choice

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PART–A (10X2 = 20M)

		Marks	CO	BTL
1.a)	What are the two necessary conditions for interference of light to Occur?	2M	CO1	BL1
b)	What is the difference between Fresnel and fraunhofer diffraction.	2M	CO1	BL1
c)	What are the lattice parameters?	2M	CO2	BL2
d)	What is Bragg's Law.	2M	CO2	BL1
e)	What are dielectric materials? Give its properties.	2M	CO3	BL1
f)	Define Magnetic Dipole and Magnetic momentum.	2M	CO3	BL1
g)	Explain Dual Nature of light.	2M	CO4	BL2
h)	What is physical significance of Wave function?	2M	CO4	BL1
i)	Write about intrinsic semiconductor.	2M	CO5	BL1
j)	Write the any two applications of Hall Effect.	2M	CO5	BL1

PART–B (5X10 = 50M)

		Marks	CO	BTL
	UNIT-I			
2.(a)	Derive an expression for diameter of the n^{th} dark & bright rings in Newton's rings viewed in reflected light system	10M	CO1	BL3
	(OR)			
3.(a)	What is the differences between Fresnel and fraunhofer diffraction.	5M	CO1	BL2
3.(b)	Explain half wave and quarter wave plates.	5M	CO1	BL2
	UNIT-II			

4.(a)	Describe seven crystal systems with diagrams	5M	CO2	BL3
4.(b)	What are miller indices? How are they can be obtained?	5M	CO2	BL2
	(OR)			
5.(a)	Solve the packing factor of simple cubic structure and body cantered cubic structures.	10M	CO2	BL3
	UNIT-III			
6.(a)	Explain in detail Dia, Para, Ferro, Anti Ferro and Ferri Magnetic Materials.	10M	CO3	BL3
	(OR)			
7.(a)	Explain soft and hard magnetic materials.	5M	CO3	BL2
7.(b)	Explain and derive an expression for electronic polarization in a dielectric material.	5M	CO3	BL3
	UNIT-IV			
8.(a)	State and explain Heisenberg's uncertainty principle in detail.	3M	CO4	BL2
8.(b)	Derive an expression for Schrodinger's time independent wave equation.	7M	CO4	BL3
	(OR)			
9.(a)	Derive the equation for behaviour of a particle in one dimensional potential box.	10M	CO4	BL3
	UNIT-V			
10.(a)	Derive an expression for intrinsic carrier concentration in semiconductors.	10M	CO5	BL3
	(OR)			
11(a)	Explain the phenomenon of hall effect.	5M	CO5	BL2
11(b)	Derive the expression for hole concentration in p-type semiconductor.	5M	CO5	BL3

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(S) BR23 /(BR20) 03/07/2026

Course Code: 23ES2T01

BONAM VENKATA CHALAMAYYA ENGINEERING COLLEGE: ODALAREVU
(AUTONOMOUS)
I B.Tech II Semester Regular/ Supplementary Examinations (BR23) JUNE-2026
BASIC CIVIL & MECHANICAL ENGINEERING(CE, EEE, ME, ECE)

Time: 3 hours **Total Marks: 70**

Note: i. Question paper consists of two Parts: viz. Part-A and Part-B, with a weightage of 35 marks each.
ii. Answer all short answer type questions of Qn.1 and Questions from 2-4 shall contain either-or type choice; answer any one from either/or type questions.
ii For Questions 2-4; each question can contain 10 marks as a single question or 2 sub questions with 5 marks each.

PART A: BASIC CIVIL ENGINEERING (MAX. MAKS:35)

SECTION-A

5 X 1M = 5M

Q.no		Marks	CO	BL
1.(a)	Define surveying.	(1M)	CO1	BL1
(b)	Define permeability.	(1M)	CO2	BL1
(c)	Define bridge.	(1M)	CO2	BL1
(d)	Define harbour.	(1M)	CO3	BL1
(e)	Draw the cross section of permanent wave of railway track.	(1M)	CO3	BL2

SECTION-B

3 X 10M = 30M

	UNIT-I	Marks	CO	BL
2.a)	Explain the role of Civil Engineering in the Society.	(5 M)	CO1	BL2
2.b)	Explain three pre fabricated techniques	(5M)	CO1	BL2
	(OR)			
3.a)	Explain any five characteristics of bricks.	(5M)	CO1	BL2
3.b)	Explain any five contraction materials different types of bricks.	(5M)	CO1	BL2
	UNIT-II			
4.a)	Explain the classification of steel structures.	(5M)	CO2	BL2
4.b)	Explain the classification of bridges based on the material.	(5M)	CO2	BL2
	(OR)			
5.a)	What are the various objectives of surveying?	(4M)	CO2	BL1
5.b)	Draw and explain any five components parts of a dumpy level.	(6M)	CO2	BL2
	UNIT-III			
6.a)	Differentiate between flexible pavement and rigid pavement with neat sketch.	(10M)	CO3	BL2
	(OR)			
7.a)	What are the various sources of water? Explain.	(5M)	CO3	BL2
7.b)	Explain any five water quality specification as IS code.	(5M)	CO3	BL2

End of Part-A

PART B: BASIC MECHANICAL ENGINEERING (MAX.MAKS: 35)

SECTION-A

5 X 1M = 5M

Q.no		Marks	CO	BL
1.(a)	Write two points about ferrous metals.	(1M)	CO1	BL1
(b)	State the working principle of a boiler.	(1M)	CO2	BL1
(c)	Define one tonne of refrigeration (1TR).	(1M)	CO2	BL1
(d)	What is a chain drive? Name the common types of chains used for power transmission.	(1M)	CO3	BL1
(e)	Define slip in a belt drive.	(1M)	CO3	BL1

SECTION-B

3 X 10M = 30M

		Marks	CO	BL
	UNIT-I			
2.a)	Explain the role of mechanical engineering in present society	(5M)	CO1	BL2
2.b)	Explain about energy and automobile sectors of Mechanical Engineering.	(5M)	CO1	BL2
	(OR)			
3.a)	Explain the classification of engineering materials	(5M)	CO1	BL2
3.b)	Discuss the engineering materials applications in modern industries.	(5M)	CO1	BL2
	UNIT-II			
4.a)	Draw and explain the block diagram of an Electric vehicle, indicate each component.	(5M)	CO2	BL2
4.b)	Explain about otto cycle.	(5M)	CO2	BL2
	(OR)			
5.a)	Describe the layout and operation of a Hydro Power Plant. Discuss the functions of its main components.	(5M)	CO2	BL2
5.b)	Demonstrate about thermal power plant	(5M)	CO2	BL2
	UNIT-III			
6.a)	What are the different types manufacturing processes. Explain any one process.	(5M)	CO3	BL2
6.a)	Explain the basic components and working principle of a CNC machine.	(5M)	CO3	BL2
	(OR)			
7.a)	Define a robot. Explain the concepts of links and joints in robotics.	(5M)	CO3	BL2
7.b)	Classify any four different types of robotic joints.	(5M)	CO3	BL2

End of Part-B

Course Code: 23ES2T02

BONAM VENKATA CHALAMAYYA ENGINEERING COLLEGE: ODALAREVU
(AUTONOMOUS)
I-B.Tech II-Semester Regular/Supplementary Examinations (BR23), JUNE-2026
BASIC ELECTRICAL AND ELECTRONICS ENGINEERING
(Common to CSE, IT, CSE(AI&DS), AI&ML,CSE(AI&ML)

Time: 3 hours **Max. Marks: 70**

1. Question Paper consist of two parts viz., Part -A & Part -B with equal weightageof 35 marks each.
2. Answer all 5 Questions in section A of each Part. Each question carries 1 Mark.
3. Answer three questions from Section B of each part. Each question carries 10 Marks with internal choice.

PART –A (ELECTRICAL)

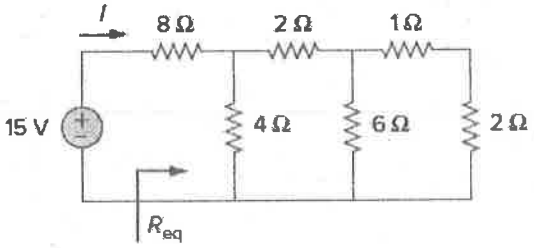
SECTION –A **5 X 1 = 5M**

1.a)	List the limitations of Ohm's Law.	[1M]	CO1	BL1
b)	Define the following i) Time period ii) Frequency.	[1M]	CO1	BL1
c)	State the working principle of transformer.	[1M]	CO2	BL1
d)	Define tariff?	[1M]	CO3	BL1
e)	List any two safety precautions to be followed while working with electrical equipment.	[1M]	CO3	BL1

SECTION –B **3 X 10 = 30M**

UNIT-I

2.a)	State and Explain Kirchhoff's Laws with one example	[5M]	CO1	BL2
b)	Determine equivalent resistance R_{eq} and source current I in the circuit given below.	[5M]	CO1	BL3



(OR)

3.a)	Derive average value and RMS value for a given sine wave.	[5M]	CO1	BL3
b)	Write the voltage-current (V-I) relationships for the electrical circuit elements R, L, and C.	[5M]	CO1	BL2

UNIT-II

4.	Explain the construction and operation of a three-phase induction motor with a neat diagram.	[10M]	CO2	BL2

(OR)

5.a)	Explain the working principle of Moving Iron (MI) instrument.	[5M]	CO2	BL2
b)	Write the applications of DC motors and three phase induction motors.	[5M]	CO2	BL2

UNIT-III

6.a)	With a neat diagram explain the working of Miniature Circuit Breaker (MCB).	[5M]	CO3	BL2

b)	Explain two part tariff and write the procedure to calculate electricity bill for Domestic Consumers.	[5M]	CO3	BL2
	(OR)			
7.	Draw a neat block diagram of a solar power plant and explain the functions of its various components. Discuss its advantages and disadvantages.	[10M]	CO3	BL2

PART –B (ELECTRONICS)

SECTION –A

8.a)	What is an Extrinsic semiconductor?	[1M]	CO4	BL1
b)	What is Avalanche Breakdown?	[1M]	CO4	BL1
c)	Draw the block diagram of dc power supply.	[1M]	CO5	BL1
d)	What is the purpose of a capacitor filter in a full-wave rectifier circuit?	[1M]	CO5	BL2
e)	Write the two De Morgan's Laws.	[1M]	CO6	BL1

SECTION –B

3 X 10 = 30

UNIT-IV

9.	Describe the operation of a PN junction diode under forward and reverse bias conditions and sketch its V–I characteristics.	[10M]	CO4	BL2
	(OR)			
10.a)	Explain the V–I characteristics of a Zener diode.	[5M]	CO4	BL2
b)	Explain the input and output characteristics of a transistor operating in Common Emitter (CE) configuration with the help of neat sketches.	[5M]	CO4	BL3

UNIT-V

11.a)	Draw the block diagram of Electronic Instrument and explain briefly about each component.	[5M]	CO5	BL2
b)	Explain about RC coupled amplifier with neat circuit diagram	[5M]	CO5	BL3
	(OR)			
12.	Explain the working principle of a full-wave rectifier with the help of a neat circuit diagram and draw the waveforms. Derive the expressions for average value, RMS value and Ripple factor.	[10M]	CO5	BL3

UNIT-VI

13.a)	Convert the following. i) $(125)_{10}$ to binary ii) $(110111001)_2$ to decimal. iii) $(256)_{10}$ to binary iv) $(101101)_2$to decimal	[5M]	CO6	BL2
b)	What are logic gates? Explain about different logic gates and write their truth tables.	[5M]	CO6	BL2
	(OR)			
14.a)	Explain any two Boolean theorems.	[5M]	CO6	BL2
b)	Draw and explain full adder circuit.	[5M]	CO6	BL3

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(5) (BR23/BR20) 06/07/2026

Course Code: 23CE2T01

BONAM VENKATA CHALAMAYYA ENGINEERING COLLEGE :: ODALAREVU
(AUTONOMOUS)
I B.Tech II Semester Regular/Supplementary Examinations (BR23), June-2026
ENGINEERING MECHANICS (CE,ME)

Time: 3 hours **Max. Marks: 70**

Question Paper consists of Part-A and Part-B
Answer ALL the questions of Part-A
Part-B consists of 5 questions with either/or choice, answer any one from either/or choice

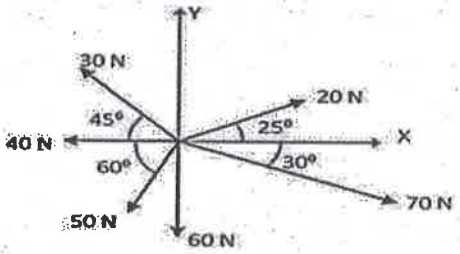
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PART–A (10X2 = 20M)

		Marks	CO	BTL
1.a)	What is a force.	(2M)	1	BL1
b)	What are the types of friction.	(2M)	1	BL1
c)	Define triangular law of forces.	(2M)	2	BL1
d)	State lami's Theorem.	(2M)	2	BL1
e)	Differentiate between centroid and center of gravity.	(2M)	3	BL1
f)	State first theorem of Pappus.	(2M)	3	BL1
g)	What is D-Alembert's Principle?	(2M)	4	BL1
h)	Define (i) work; (ii) energy.	(2M)	4	BL1
i)	A body is moving with a velocity of 3 m/sec. After five seconds the velocity of the body becomes 13 m/sec. Find the acceleration of the body.	(2M)	5	BL1
j)	Write impulse momentum equation.	(2M)	5	BL1

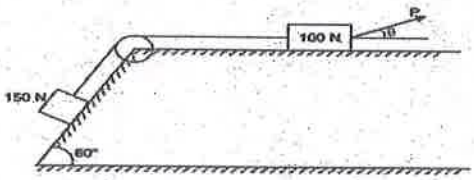
PART–B (5X10 = 50M)

		Marks	CO	BTL
	UNIT-I			
2.a.	Find the resultant of the system of forces shown below.	(10M)	1	BL3



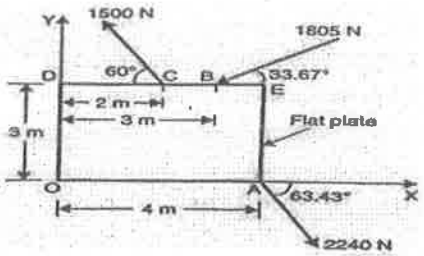
(OR)

3.a.	Classify different systems of forces with suitable examples.	(5M)	1	BL2
3.b.	With reference to the figure below, calculate the least value of the force *P*necessary to cause the impending motion of the blocks in the rightward direction. Take the coefficient of friction under the blocks as 0.2 and assume the pulley to be frictionless.	(5M)	1	BL3



UNIT-II

4.a.	A coplanar system of force is acting on a flat plate as shown in the figure. Determine (i) the resultant and (ii) x and y intercepts of the resultant.	(10M)	2	BL3

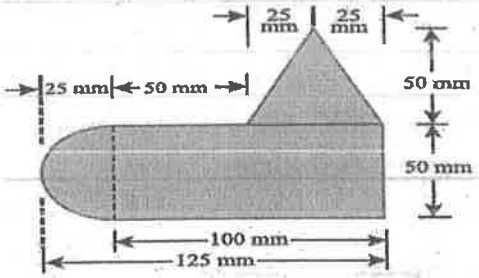


(OR)

5.(a)	Explain the Triangle law of forces and Polygon law of forces.	(10M)	2	BL2

UNIT-III

6.(a)	A uniform lamina shown in Figure consists of a rectangle, a circle and a triangle. Determine the centre of gravity of the lamina. All dimensions are in mm.	(10M)	3	BL3



(OR)

7.a	State and prove perpendicular axis theorem for area moment of inertia.	(5M)	3	BL2
7.b	Determine the mass moment of inertia of cone of base radius R, height h, and mass density about its geometric axis.	(5M)	3	BL3

UNIT-IV

8.a.	A particle moves along a straight line of the displacement given in meters $S= t^3 +3t^2+4t+5$ find (i) Velocity at rest and after 4 seconds (ii)Acceleration at rest and after 4 seconds.	(10M)	4	BL3

(OR)

9.a.	Define rectilinear motion and curvilinear motion with examples.	(5M)	4	BL2
9.b.	A particle moves with an initial velocity of 10 m/s and acceleration of 2 m/s². Determine its displacement and final velocity after 5 s.	(5M)	4	BL3

UNIT-V

10.a.	Explain the impulse-Momentum equation of a body in motion.	(5M)	5	BL2
10.b.	Explain the law of conversation of energy.	(5M)	5	BL2

(OR)

11.a.	A 320 kN gun fires a 6 kN shell horizontally with a velocity of 300m/s. What is the recoil velocity of the gun? The recoil is overcome by applying an average force of 500 kN. What is the distance travelled by the gun and the time taken?	(10M)	5	BL3

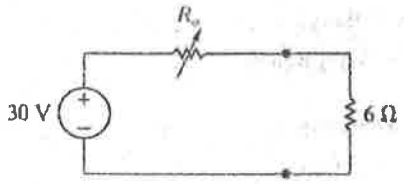
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BONAM VENKATA CHALAMAYYA ENGINEERING COLLEGE: ODALAREVU
(AUTONOMOUS)
I-B. Tech II-Semester Regular/Supplementary Examinations (BR23) JUNE– 2026
ELECTRICAL CIRCUITS
(EEE)

TIME:3 hrs **Max Marks:70**

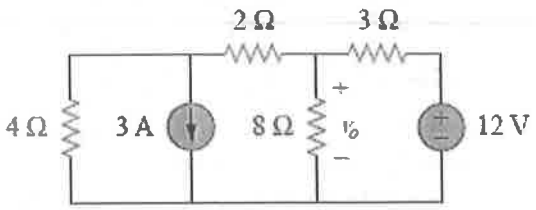
Question Paper consists of Part-A and Part-B
Answer ALL the question in Part-A
Part-B consists of 5 questions with either/or choice, answer any one from either/or

		Marks	CO	BTL
1.a)	State Ohm's law.	2M	CO1	BL1
b)	Differentiate between dependent and independent sources.	2M	CO1	BL1
c)	Define phase angle and phase difference.	2M	CO2	BL1
d)	Define peak factor of an alternating quantity.	2M	CO2	BL1
e)	Write an expression for energy stored in two coils connected in series and have positive mutual inductance between them.	2M	CO3	BL1
f)	Discuss the factors on which reluctance of a magnetic path depends.	2M	CO3	BL1
g)	The impedance of parallel resonant circuit at resonance is minimum. State True/False	2M	CO4	BL2
h)	What are locus diagrams?	2M	CO4	BL1
i)	State reciprocity theorem.	2M	CO5	BL1
j)	Calculate the maximum power that can be delivered to the 6Ω resistor, assume source resistance as R_0	2M	CO5	BL2



UNIT-I

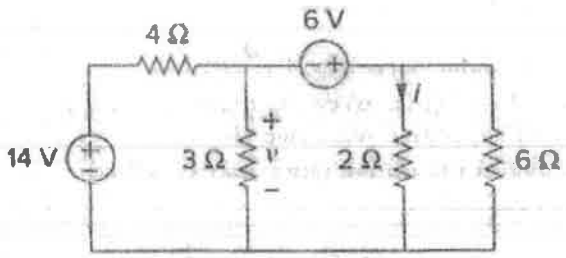
2.a)	Use KCL to find v_o in the circuit in Figure.	5M	CO1	BL3



2.b)	Define mesh analysis (KVL). Explain any one example.	5M	CO1	BL2

OR

3.a)	Determine the voltage 'v' and current 'i' in the circuit shown below using Nodal analysis?	5M	CO1	BL3



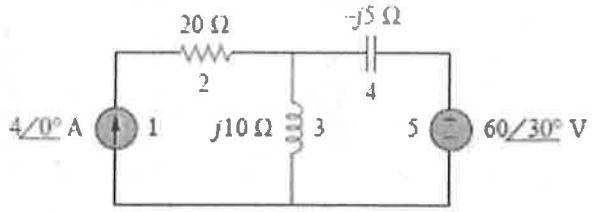
3.b)	State and explain Kirchhoff's current law and voltage law with one examples	5M	CO1	BL2

UNIT-II

4.a)	A series RL circuit of resistance R, inductance L excited by an AC voltage source $v = V_m \cos\omega t$. Write the: expression for the following (a) Inductive reactance and capacitive reactance (b) Impedance of the circuit (c) Current through the circuit (d) Active power consumed by the circuit.	5M	CO2	BL3
4.b)	Explain maximum power transfer theorem with any one example.	5M	CO2	BL2

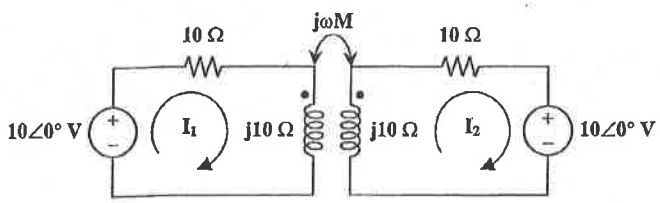
OR

5.	Using mesh analysis determine the currents in the two meshes.	10M	CO2	BL3



UNIT-III

6.	For the circuit shown in figure if K=1 find i_1 and i_2.	10M	CO3	BL3



OR

7.a)	Discuss the analogy between electrical and magnetic circuits.	3M	CO3	BL2
b)	State and explain Faraday's law of electromagnetic induction.	7M	CO3	BL3

UNIT-IV

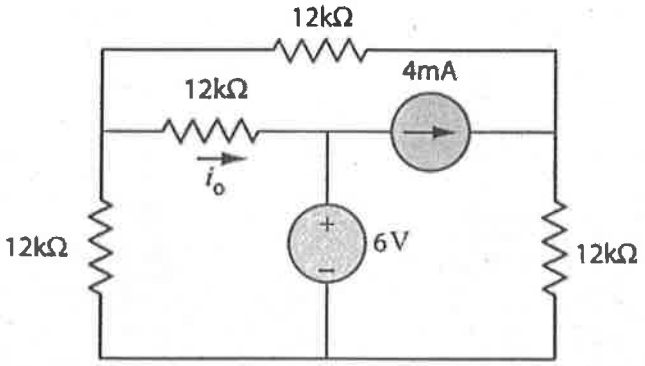
8.a)	A parallel RLC circuit has a coil with resistance 20 Ω and inductance 50 mH, and it is connected in parallel with a capacitor of 10 μF. Calculate the resonant frequency	5M	CO4	BL3
b)	Derive an expression for resonant frequency of a parallel RLC network.	5M	CO4	BL2

OR

9.	Derive the expression for self and mutual inductance	10M	CO4	BL2

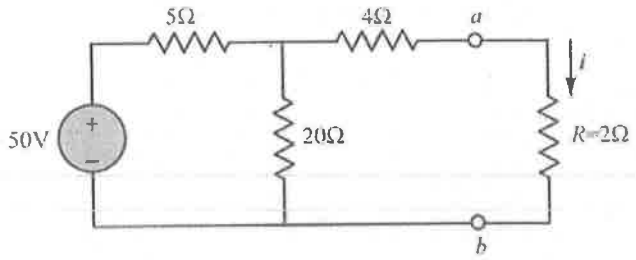
UNIT-V

10.a)	Find i_1,i_2 in the network shown in Fig. using superposition.	10M	CO5	BL3



OR

11.a) Using the Thevenin's theorem, find the current i through R= 2Ω 5M CO5 BL3



11.b) Write a short notes on the reciprocity theorem. 5M CO5 BL2

Course Code: **23EE2T02**

BONAM VENKATA CHALAMAYYA ENGINEERING COLLEGE::ODALAREVU
(AUTONOMOUS)

I-B.Tech II-Semester Regular/Supplementary Examinations (BR23), JUNE-2026
NETWORK ANALYSIS (ECE)

Time: 3 hours **Max. Marks: 70**

1. Question Paper consist of two parts viz., Part -A & Part -B
2. Answer all Questions in Part-A. Each question carries 2 Marks.
3. Answer any five Questions one Question from Each Unit. Each question carries 10 Marks

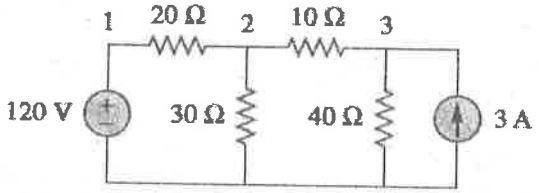
PART-A(10×2=10M)

1.a)	Explain how to convert a real voltage source into a real current source.	BL1	CO1	2M
b)	State Norton's theorem.	BL1	CO1	2M
c)	Define power factor.	BL1	CO2	2M
d)	What is phase difference.	BL1	CO2	2M
e)	What is meant by Inverse Laplace transform.	BL1	CO3	2M
f)	Define time constant.	BL1	CO3	2M
g)	List Dot rule of couple circuits.	BL1	CO4	2M
h)	Define Resonance.	BL1	CO4	2M
i)	What is meant by cascading of two port parameters?	BL1	CO5	2M
j)	List short circuit parameter formulas.	BL1	CO5	2M

PART-B

UNIT-1

2.a) Calculate the node voltages in the circuit shown in Fig. BL3 CO1 5M

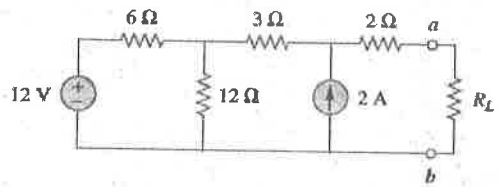


2.b) State and explain Maximum power transfer theorem and derive the condition for maximum power transfer. BL1 CO1 5M

OR

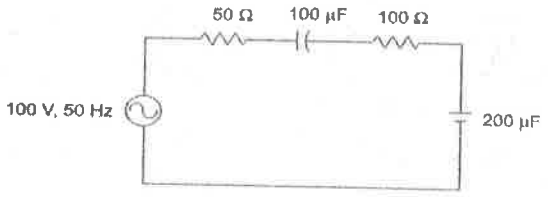
3.a) State and explain Norton's theorem with suitable example. BL1 CO1 5M

3.b) Determine the value of for maximum power transferred in the circuit of Fig. below. BL3 CO1 5M



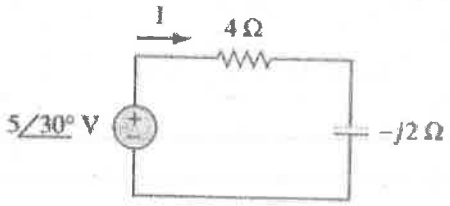
UNIT-2

4.a) For the circuit shown in Fig., determine the impedance, current and phase angle. BL3 CO2 10M



OR

5.a) For the circuit shown in Fig. below, determine the current supplied by the source and the voltage drop across the resistor and phase angle. BL3 CO2 10M



UNIT-3

6.a) Determine the inverse Laplace transform of $F(s) = \frac{s+5}{s(s^2+2s+5)}$ BL3 CO3 5M

6.b) A series R-L circuit with R=60Ω and L=30H has a constant voltage V=120V applied at t=0.Determine an expression for the current. Assume zero current through the inductor at t=0. BL2 CO3 5M

OR

7.a) Explain the transient response of RL circuit with neat Diagram and Graph. BL2 CO3 10M

UNIT-4

8.a) Derive an expression for mutual inductance when two coiled are connected in parallel opposition manner. BL2 CO4 5M

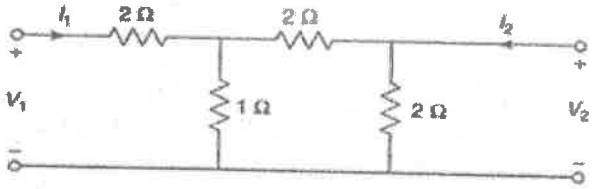
8.b) A Series connected circuit has R=4Ω and L=25mH. i) Determine the value of C that will produce a quality factor of 50. ii) Determine cut of frequencies and B.W BL3 CO4 5M

OR

9.a) Define self inductance, mutual inductance and derive an expression for co-efficient of coupling (k). BL1 CO4 10M

UNIT-5

10.a) Two identical sections of the network shown in the fig. below are connected in cascade. Determine transmission parameters of the overall section. BL2 CO5 10M



OR

11.a) Express the Z parameters in terms of Y parameters. BL3 CO5 10M

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Course Code: 23HM2T01

BONAM VENKATA CHALAMAYYA ENGINEERING COLLEGE :: ODALAREVU
(AUTONOMOUS)
I-B.Tech II-Semester Regular/Supplementary Examinations (BR23), June-2026
Communicative English
(Common to CSE, IT, CSE(AI&DS), AI&ML & CSE(AI&ML))

Time: 3 hours **Max. Marks: 70**

Question Paper consists of Part-A and Part-B
Answer ALL the questions of Part-A
Part-B consists of 5 questions with either/or choice, answer any one from either/or choice

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PART–A (10X2 = 20M)

Q. No.	Questions	Marks	CO	BTL
1.a)	Who wrote The Gift of the Magi?	2M	CO1	BL1
b)	Why is Della worried at the beginning of the story?	2M	CO1	BL1
c)	Name the poet of The Brook.	2M	CO2	BL1
d)	What message does the brook convey about life?	2M	CO2	BL1
e)	What company did Elon Musk found for electric vehicles?	2M	CO3	BL1
f)	Mention two renewable energy technologies promoted by Elon Musk.	2M	CO3	BL1
g)	What is the central theme in Saki's "The Toys of Peace"?	2M	CO4	BL1
h)	How does humour make Saki's stories interesting?	2M	CO4	BL2
i)	What do you mean by self-awareness in intrapersonal communication?	2M	CO5	BL1
j)	How can intrapersonal communication improve confidence?	2M	CO5	BL2

PART–B (5X10 = 50M)

		Marks	CO	BTL
	UNIT-I			
2.(a)	Analyse the relationship between Jim and Della in The Gift of the Magi.	5M	CO1	BL4
2.(b)	Explain with examples the following parts of speech: noun, pronoun, verb, adjective and interjection.	5M	CO1	BL3
	(OR)			
3.(a)	Discuss the importance of irony in The Gift of the Magi.	5M	CO1	BL4
3.(b)	Write the root words and meanings of the following: 1. Aqua 2. Chron 3. Multi 4. Port 5. Audio	5M	CO1	BL3
	UNIT-II			
4.(a)	Explain the theme of immortality in The Brook.	5M	CO2	BL2
4.(b)	Write a paragraph in 75 words on "Advantages and Disadvantages of Mobile Phones."	5M	CO2	BL3
	(OR)			
5.(a)	Explain how the poet describes the movement of the brook in The Brook.	5M	CO2	BL3

5.(b)	Fill in the blanks with suitable articles: 1. _____ sun rises in the east. 2. I saw _____ owl on the tree. 3. He is _____ engineer. 4. We visited _____ Taj Mahal last year. 5. She bought _____ orange dress.	5M	CO2	BL3
	UNIT-III			
6.(a)	Analyse the contribution of Elon Musk towards sustainable energy development.	5M	CO3	BL4
6.(b)	Fill in the blanks with correct forms of verbs: 1. The baby _____ (sleep) now. 2. We _____ (watch) a movie yesterday. 3. She has _____ (finish) the project. 4. They _____ (study) for two hours. 5. He likes _____ (play) chess.	5M	CO3	BL3
	(OR)			
7.(a)	Explain the role of Tesla in the development of electric vehicles.	5M	CO3	BL3
7.(b)	Correct the following sentences: 1. He do not like coffee. 2. She have finished her homework. 3. I am living here since 2020. 4. They was playing football. 5. We goes to market every Sunday.	5M	CO3	BL3
	UNIT-IV			
8.(a)	Discuss the major characteristics of Edwardian society reflected in Saki's works.	5M	CO4	BL4
8.(b)	Write a letter to the Electricity Department complaining about frequent power cuts in your area.	5M	CO4	BL3
	(OR)			
9.(a)	Change the following from Direct to Indirect Speech: 1. Anita said, "I will attend the meeting." 2. The teacher said to the boys, "Be quiet." 3. He said, "I have completed my work." 4. Father said to me, "Why are you late?" 5. The manager said, "Submit the application today."	5M	CO4	BL3
9.(b)	Explain how Saki uses satire to criticize social traditions.	5M	CO4	BL3
	UNIT-V			
10.	Write an essay on "Global Warming and Its Prevention.	10M	CO5	BL4
	(OR)			
11.	Explain the role of intrapersonal communication in stress management.	10M	CO5	BL3

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BONAM VENKATA CHALAMAYYA ENGINEERING COLLEGE::ODALAREVU
(AUTONOMOUS)

I B.Tech II Semester Regular End Examinations (BR23) June-2026 FN

ENGINEERING GRAPHICS (ECE)

Time: 3 hours (F.N) **Max. Marks: 60**

Paper consists of five questions,
Each question has internal choice, and either of them can be answered
All Questions carry Equal Marks

			Marks	CO	BTL
		UNIT-I			
1.	a)	Construct a Hexagon of 40 mm side with one side vertical.	7	CO1	3
	b)	Construct a Plain scale of 1:4 to show centimetres and long enough to measure up to 5 decimetres. Mark on your scale a distance of 3.7 decimetres.	7	CO1	3
		(OR)			
1.	c)	Draw an Involute when the radius of the generating circle is 30 mm. Draw a normal and a tangent to the Involute at any point on it.	14	CO1	2
		UNIT-II			
2.	a)	Two points A and B are in the H.P. The point A is 30 mm in front of the V.P., while B is behind the V.P. The distance between their projectors is 75 mm, and the line joining their top views makes an angle of 45° with xy. Find the distance of point B from the V.P.	7	CO2	3
	b)	Draw the projections of following points keeping the distance between projectors is 30mm apart. (i) 'A' is 20mm above H.P and 40mm in front of V.P (ii) 'B' is 30mm above H.P and on V.P. (iii) 'C' is 30mm below H.P and 30mm behind V.P.	7	CO2	2
		(OR)			
2.	c)	A 50 mm long line AB is parallel to both H.P. and V.P. The line is 25mm in front of V.P. and 60mm above H.P. Draw the projections of the line.	7	CO2	3
	d)	A regular Hexagon of 30 mm sides is resting on HP, on one of its sides, with its surface 60^0 inclined to HP. Draw its projections.	7	CO2	3
		UNIT-III			
3.	a)	A Hexagonal pyramid of base side 30mm and height of 70mm is resting on HP. The axis making an angle of 45^0 to HP and parallel to VP. Draw its projection.	14	CO3	3
		(OR)			
3.	c)	A triangular prism with a base of 40 mm and a height of 65 mm is resting on the H.P. on one of its rectangular faces with the axis parallel to the V.P. Draw its projections	7	CO3	3
	d)	A square pyramid of base side 50 mm and axis 70 mm is lying on the V.P. with one of its triangular faces with its axis parallel to and 40mm above HP. Draw its projections	7	CO3	3

UNIT-IV

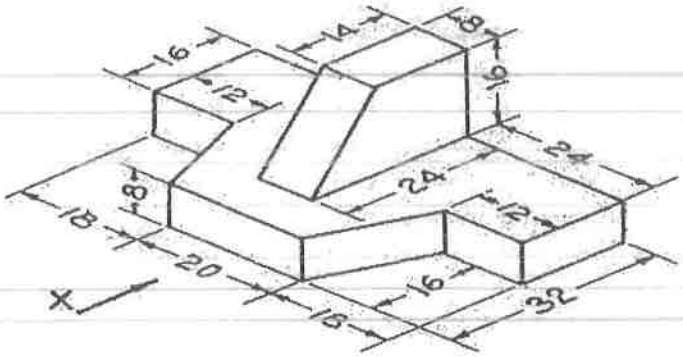
4.	a)	A square pyramid of base side 40mm and axis 70mm is resting on the H.P. It is cut by a section plane perpendicular to V.P and inclined 45° to H.P and passing through mid point of the axis. Draw the (i) Front view (ii) Sectional top view (iii) True shape of the section.	14	CO4	3

(OR)

4.	c)	A right circular cone of 40mm base diameter and axis 80mm long resting on its base on the HP. It is cut by the section plane inclined at 45°to HP and perpendicular to VP, bisecting the axis of the cone. Draw the development of the lateral surface of the Cone.	14	CO4	3

UNIT-V

5.	a)	Draw the front view, top view and side view of the object as shown in the figure below.	14	CO5	3



(OR)

5.	c)	Draw the Isometric view of a Square Prism of side of base 35 mm and height 65 mm when its axis is (i) Vertical and (ii) Horizontal.	14	CO5	3

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Course Code: 23CS2T01

BONAM VENKATA CHALAMAYYA ENGINEERING COLLEGE:: ODALAREVU
(AUTONOMOUS)
I B.Tech II Semester Regular/Supplementary Examinations (BR23), June-2026
DATA STRUCTURES
(CSE,IT,CSE(AI&DS),AI&ML &CSE(AI&ML))

Time: 3 hours **Max. Marks: 70**

Question Paper consists of Part-A and Part-B
Answer ALL the questions of Part-A
Part-B consists of 5 questions with either/or choice, answer any one from either/or choice

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PART–A (10X2 = 20M)

		Marks	CO	BTL
1.a)	What are the types of data structures?	2M	CO1	BL1
b)	State the relationship between an Abstract Data Type (ADT) and a Data Structure.	2M	CO1	BL1
c)	What are the stack overflow and stack underflow conditions in stack operations.	2M	CO2	BL2
d)	State the basic principle of the Depth First Search (DFS) algorithm.	2M	CO2	BL2
e)	Define a Double-Ended Queue (Deque) and state how it differs from a normal queue.	2M	CO3	BL2
f)	Define a priority queue and state the basic principle of its operation.	2M	CO3	BL2
g)	What is a linked list? Mention the different types of linked lists.	2M	CO4	BL2
h)	Define a node in a linked list and illustrate its basic structure with a neat diagram.	2M	CO4	BL2
i)	Any two difference between a general tree and a binary tree in the context of Data Structures.	2M	CO5	BL2
j)	What are the Graph representation explain any one.	2M	CO5	BL2

PART–B (5X10 = 50M)

		Marks	CO	BTL
	UNIT-I			
2.(a)	Sort the given list of elements are 45, 12, 78, 34, 23, 90, 11, 56, 67, 30 using Quick Sort.	5M	CO1	BL2
2.(b)	Write a mechanism and algorithm of searching an element in a sorted array using binary search.	5M	CO1	BL3

	(OR)			
3.(a)	Describe the parameters used to measure algorithm performance and mechanism using Linear Search algorithm.	5M	CO1	BL2
3.(b)	Write a algorithm to implement Merge Sort. Illustrate the process of dividing the elements into sub-arrays and merging them in a sorted order with the help of a suitable example.	5M	CO1	BL3
	UNIT-II			
4.(a)	Explain the steps involved in converting an infix expression into a postfix expression using operator precedence and stack operations. Demonstrate the conversion with the following infix expression. **Infix Expression:**(A+B)*C−(D/E)+F	5M	CO2	BL4
4.(b)	Implement a stack using arrays and write mechanism and snippets for push, pop, and display operations.	5M	CO2	BL3
	(OR)			
5.(a)	Evaluate the following postfix expression using stack operations and show the intermediate steps. **Postfix Expression:**5 6 2 + * 8 4 / -	5M	CO2	BL4
5.(b)	Write a mechanism and algorithm to reverse the elements of a list using stack operations.	5M	CO2	BL3
	UNIT-III			
6.(a)	Compare circular queue is more efficient than a linear queue.	5M	CO3	BL2
6.(b)	Develop to perform Breadth First Search (BFS) traversal of a graph using a queue data structure.	5M	CO3	BL3
	(OR)			
7.(a)	Describe the Round Robin scheduling algorithm. Explain the role of queues in CPU scheduling and demonstrate the scheduling process with a suitable example.	5M	CO3	BL2
7.(b)	Write mechanism to implement a queue using arrays. Explain the handling of queue overflow and queue underflow conditions.	5M	CO3	BL3
	UNIT-IV			
8.(a)	Compare arrays and linked lists based on their memory representation, data access mechanism, insertion and deletion operations, and memory utilization.	5M	CO4	BL3

8.(b)	Implement a doubly linked list and perform basic operations such as insertion and deletion.	5M	CO4	BL3
	(OR)			
9.(a)	Explain the any two applications of linked lists in computer science.	5M	CO4	BL2
9.(b)	Develop an algorithm and mechanism to create a singly linked list and perform basic operations such as inserting at begin node.	5M	CO4	BL3
	UNIT-V			
10.(a)	Consider a hash table of size 11. Insert the following keys using double hashing for collision resolution. Show the probe sequence and final hash table. **Primary Hash Function:** $h_1(k)=k \bmod 11$ **Secondary Hash Function:** $h_2(k)=7-(k \bmod 7)$ **Keys to be inserted:** 22, 41, 53, 46, 30, 13	5M	CO5	BL4
10.(b)	Explain the binary tree traversal with algorithms.	5M	CO5	BL2
	(OR)			
11.(a)	Create a Binary Search Tree (BST) using the following elements. Explain the deletion of a node from the BST and show the tree structure before and after deleting the given node. **Elements:** 45, 25, 65, 15, 35, 55, 75, 10, 20, 30 **Delete the node:** 25	5M	CO5	BL4
11.(b)	Discuss about hash, open address and quadratic probing.	5M	CO5	BL3

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BONAM VENKATA CHALAMAYYA ENGINEERING COLLEGE::ODALAREVU
(AUTONOMOUS)
I B.Tech II Semester Regular/Supplementary Examinations (BR23), June -2026
ENGINEERING GRAPHICS
(MEC& ECE)

Duration: 3 hours (AN) **Max. Marks: 70**

Paper consists of five questions. Each question has an internal choice, and either of them can be answered
All Questions carry Equal Marks

		Marks	CO	BTL
	UNIT-I			
1.a)	Construct a Pentagon of 40 mm side with one side vertical.	4M	CO1	BL2
b)	Draw a parabola that has a distance of 60 mm between the focus and the directrix. Draw Tangent and Normal at any point on the curve.	**10M**	CO1	BL2
	(OR)			
1.(c)	Draw a Cycloid when the radius of the generating circle is 30 mm. Draw a normal and a tangent to the Cycloid at any point on it.	14M	CO1	BL3
	UNIT-II			
2.(a)	Draw the orthographic projections of the following points on a common reference line keeping the distance between their projectors 30mm apart. (i) Point P is 20 mm above H.P. and 40 mm in front of VP. (ii) Point Q is 27 mm above H.P. and 45 mm behind VP. (iii) Point R is 32 mm below H.P. and 40 mm behind VP. (iv) Point S is 30 mm below H.P. and 42 mm in front of VP. (v) Point T is in H.P. and 30 mm behind VP. (vi) Point U, which is 25 mm below HP and 10 mm behind V.P. (vii)Point V, which is 40 mm below HP and 20 mm in front of the V.P.	14M	CO2	BL2
	(OR)			
2.(c)	A line AB, 65mm long, has its end A 20mm above the HP and 25mm in front of the VP. The end B is 40mm above the HP and 65mm in front of the VP. Draw the projections of AB and show its inclinations with the HP and the VP.	7M	CO2	BL3
d)	A pentagonal lamina of 30 mm side has an edge on the HP. The surface of the plane is inclined at 45^0 to H.P. Draw its projections.	7M	CO2	BL3
	UNIT-III			
3.(a)	A hexagonal prism of base 30 mm side and axis 70 mm long rests on one of its rectangular faces on the ground. Its axis is inclined at 30^0 to the vertical plane. Draw its projections.	14M	CO3	BL3
	(OR)			

on the H.P. axis vertical and 40 mm in front of the V.P. Draw the projections of the cone.

3.(d)	A cube of 50 mm long edges is resting on the H.P., with its vertical faces equally inclined to the V.P., draw its projections.	7M	CO3	BL3

UNIT-IV

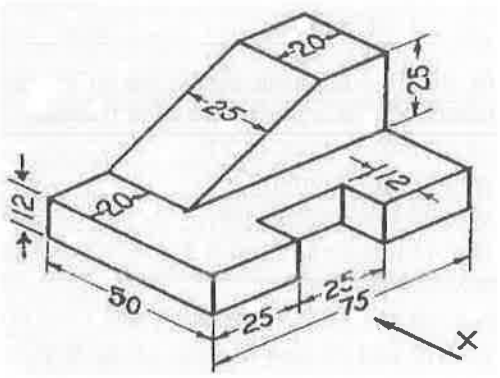
4.(a)	A cone of 40mm diameter and 60mm height has its axis vertical. It is cut by a section plane perpendicular to VP and inclined at 45^0 to HP and intersecting the axis 30mm above the base. Draw the front view, sectional top view.	7M	CO4	BL3
b)	A pentagonal pyramid of base side 30mm and axis 60mm is resting on its base in the HP. With an edge of the base parallel to the VP. A horizontal section plane cuts the pyramid bisecting the axis. Draw its front view and sectional top view.	7M	CO4	BL3

(OR)

4.(c)	Draw the development of the lateral surfaces of a cylinder with a base diameter of 40 mm and an axis 60 mm long.	14M	CO4	BL3

UNIT-V

5.(a)	Draw the front view, top view and side view of the object as shown in the figure below.	14M	CO5	BL3



(OR)

5.(c)	Draw the Isometric view of a Cylinder of base 50mm diameter and height 75mm when its axis is (i) Vertical and (ii) Horizontal.	14M	CO5	BL4

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All Questions carry Equal Marks

		Marks	CO	BTL
	UNIT-I			
1.(a)	A circle of 50 mm diameter rolls along a straight line without slipping. Draw the curve traced out by a point P on the circumference, for one complete revolution of the circle.	(14M)	CO1	BL3
	(OR)			
1.(c)	Construct a scale of 1:4 to show centimetres and long enough to measure up to 5 decimetres. Show a length of 3.7 decimetres on the scale	(8M)	CO1	BL3
1.(d)	Draw an Involute of a Square of side 25 mm.	(6M)	CO1	BL2
	UNIT-II			
2.(a)	A point P is 15 mm above the H.P. and 20 mm in front of the V.P. Another point Q is 25 mm behind the V.P. and 40 mm below the H.P. draw the projections P and Q keeping the distance between their projectors equal to 90 mm. Draw straight lines joining (i) their top views and (ii) their front views.	(7M)	CO2	BL2
2.(b)	A line AB 60 mm long has one of its end 20 mm in front of VP and 15 mm above HP. The line is inclined at 30° to HP and 45° to VP. Draw its projections and find apparent angles and lengths.	(7M)	CO2	BL3
	(OR)			
2.(c)	A hexagonal lamina of sides 40 mm is resting on one of its sides in the HP and the surface of the lamina is inclined at 45° to the HP. Draw its projections.	(7M)	CO2	BL2
2.(d)	A circular plain of diameter 50mm is resting on a point of the circumference on the VP. The plain is inclined at 30° to VP and the centre is 35 mm above the HP. Draw its projection.	(7M)	CO2	BL2
	UNIT-III			
3.(a)	A Square Pyramid, having base with a 40 mm side and 60mm axis is resting on its base on the HP. Draw its Projections when All the sides of base are equally inclined to the VP.	(14M)	CO3	BL3

3.(c)	A square prism of base side 40 mm and axis 60 mm is resting on its base on the ground. Draw its projections when (a) a face is perpendicular to the V.P.,	(7M)	CO3	BL3
3.(d)	Draw the top and front views of cube of 40mm side resting with one of its square faces on H.P. such that one of its vertical faces is parallel to and 10mm in front of V.P.	(7M)	CO3	BL3

UNIT-IV

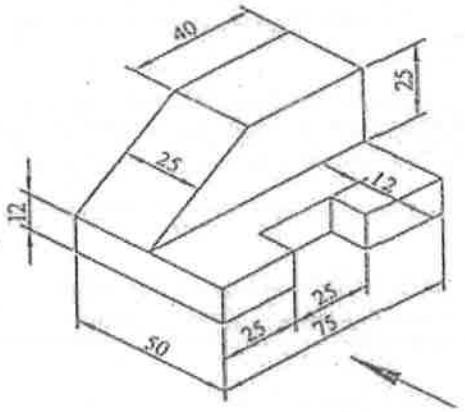
4.(a)	A cube of 50 mm side rests with one of its edges on H.P. such that the square faces containing that edge are making equal inclinations with H.P. A horizontal section plane cuts the cube at a distance 18 mm below the horizontal edge nearer to the observer. Draw the sectional top view and front view of the cube	(7M)	CO4	BL3
4.(b)	A triangular prism, base side 50 mm and axis 50 mm is lying on one of its rectangular faces on the H.P. with its axis perpendicular to the V.P. It is cut by a section plane parallel to and 20 mm above H.P. Draw its front view and sectional top view.	(7M)	CO4	BL3

(OR)

4.(c)	A cylinder of base diameter 50 mm and axis 70 mm is resting on ground with its axis vertical. It is cut by a section plane perpendicular to the V.P., inclined at 45° to the H.P., passing through the top of a generator and cuts all the other generators. Draw the development of its lateral surface.	(14M)	CO4	BL3

UNIT-V

5.(a)	Draw the Front View, Top View and Side View of the Following Figure.	(14M)	CO5	BL3



(OR)

5.(c)	Draw an isometric view of a cylinder, with a 50mm base diameter and a 70mm long axis when The base is on the HP.	(7M)	CO5	BL4
5.(d)	Draw the isometric view of a Circle lamina with a 60mm Diameter on all three Principle Planes using four centre methods?	(7M)	CO5	BL4

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